California @ 50 Million: Goals for the Future

Greenhouse Gas Emissions

Goal

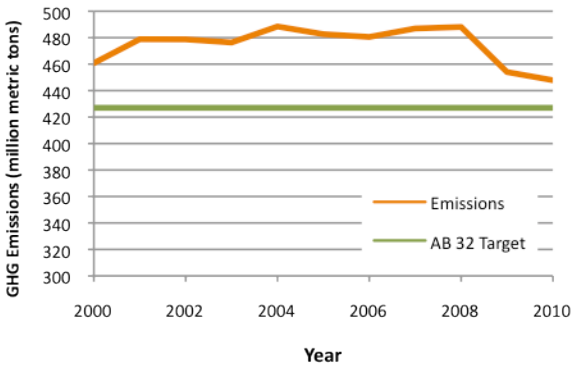
Reduce statewide GHG emissions to 1990 levels by 2020. Achieve deep emission reductions over the long-term to help achieve climate stabilization.

Why it is Important

Greenhouse gases (GHG) are responsible for global warming. The buildup of GHGs in the atmosphere, results in increases in average temperatures, rising sea levels, and an increase in the frequency and severity of extreme events. California is already experiencing effects of global warming and will continue to over the next century. Avoiding the worst of these impacts will require the reduction of GHG emissions on a global scale.

Carbon dioxide (CO_2) is a product of the combustion of fossil fuels and is the GHG emitted in the highest quantity. However, CO_2 is not the only GHG. Others include methane (CH_4), nitrous oxide (N_2O), refrigerants such as hydroflurocarbons (HFCs) and other industrial gases, and black carbon, or soot. These other GHGs are more potent than CO_2, meaning that for each unit emitted, the atmosphere experiences greater relative warming. While they are emitted in smaller quantities than CO_2, their reduction can provide significant near-term benefits.

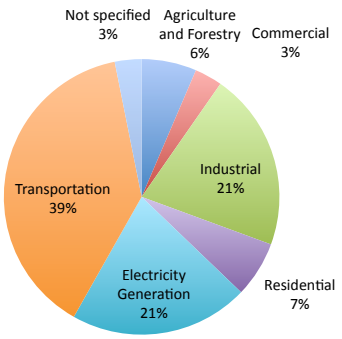
Recent Trends

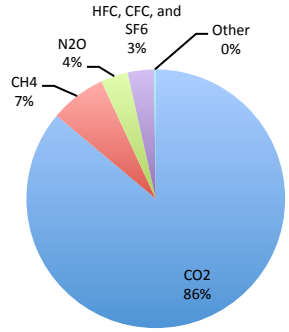


Greenhouse gas emissions in California have declined since 2008. AB 32 sets a target for emissions to reach 1990 levels by 2020. Per capita GHG emissions have also declined over the same time period and are well below the national average. However, California's per capita emissions remain higher than those countries with a similar standard of living.

	Per Capita GHG Emissions (tonnes/person)			
	2000	**2005**	**2010**	**2020 (target)**
California	13.6	13.4	12.0	10.5
United States	25.1	24.3	22.0	-
EU	10.7	10.6	10.1	-
China	3.6	5.4	7.8	-
World	5.7	6.1	6.5	-

Greenhouse gas emissions are declining in California, however in 2010, the state emitted almost 450 million metric tons of GHG.





a) GHG Emissions, 2010 (by source) **b) GHG Emissions, 2010 (by gas)**

Transportation is the largest source of GHG emissions in the California, followed by electricity generation (Figure a, above). Nearly half of the state's GHG emissions from electricity generation result from imported electricity. Carbon dioxide, which is primarily a product of the burning of fossil fuels, accounts for over 85% percent of the state's GHG emissions.

What California is Doing

California is committed to reducing GHG emissions from all sources. The Global Warming Solutions Act of 2006 requires that emissions be reduced to 1990 levels by 2020. An executive order calls for emissions to be reduced 80% below 1990 levels by 2050. At the state level, meeting these targets will require transformations large improvements in efficiency and the use of cleaner fuels and technologies in transportation and electricity generation. Additional steps are needed to reduce industrial and agricultural emissions.

California is achieving emission reductions through energy efficiency improvements, increases in the use of renewable energy, more efficient vehicles, cleaner transportation fuels, and reductions in vehicle miles traveled. Cities, counties, and regions are also implementing plans to support these goals. Many of the state's programs to reduce GHG emissions also provide air quality, public health, and other benefits.

Data Sources and Scale

California GHG emissions data are maintained and updated by the California Air Resources Board. Data can be accessed at: http://www.arb.ca.gov/cc/inventory/inventory.htm

California population data from the CA Department of Finance and can be accessed at: http://www.dof.ca.gov/research/demographic/reports/projections/P-1/

Federal GHG emissions data from US EPA. Data can be accessed at: http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2013-Main-Text.pdf

International GHG Emissions Data from the World Resources Institute. Data can be accessed here: http://www.wri.org/project/cait